



# UNITED STATES PATENT AND TRADEMARK OFFICE

HA  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/749,394   | 01/02/2004  | Soo-Sang Yang        | 103-1002            | 2854             |
| 38209  | 7590        | 10/10/2006           | EXAMINER            |                  |
| STANZIONE & KIM, LLP<br>919 18TH STREET, N.W.<br>SUITE 440<br>WASHINGTON, DC 20006 |             |                      | FANTU, YALKEW       |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2838                |                  |

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                          |                     |  |
|------------------------------|--------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b>   | <b>Applicant(s)</b> |  |
|                              | 10/749,394               | YANG ET AL.         |  |
|                              | Examiner<br>Yalkew Fantu | Art Unit<br>2838    |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 21 June 2006.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 6-9 and 20-27 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5, 10 and 28 is/are rejected.
- 7) Claim(s) 11-19 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | Paper No(s)/Mail Date: _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 28, the phrase on lines 23 and 24 "... the charging terminals move in a first direction with respect to the first body of the first charging terminal" renders the claim unclear because, the charging terminals seem moving with respect to themselves. Since the charging terminals include "the first charging terminal" similar terminals apply to the last three lines of the claim since the charging terminals, which include the second charging terminal, cannot move as part to itself.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 10 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshikawa (US 5,892,350).

Regarding claim 1, Yoshikawa discloses a charging apparatus (Fig. 3 element 32) used with a mobile robot (Fig. 3 element 14) (Fig. 3) comprising: a rechargeable battery (Fig. 3 element 52), a contact terminal included in the mobile robot (Fig. 4A elements 56 and 57), and a charging unit including a plurality of charging terminals (Fig. 3A element 18; Col. 4 lines 51 ad 52) brought into electrical contact with the contact terminals (Fig. 3 elements 56 and 57) of the robot supply the charging current to the rechargeable battery (Fig. 4A element 52) of the robot. Each of the charging terminals comprising: a body and a head (Fig. 4B, element 18; fig. 5, 83 and 85) coupled to the body to be brought into electrical contact with the contact terminals (Fig. 4A, elements 56 and 57) of the mobile robot (Fig. 4A).

With respect to claim 2, Yoshikawa discloses charging apparatus according to claim 1, wherein the plurality of charging terminals (Col. 3 lines 51 and 52) arranged in a plurality of row (Fig. 4B element 18).

Regarding claim 3, a support shaft (Fig. 4A, element 18) to support the body, and an elastic member (Fig. 4A, element 18a) to restore the body to an original position.

Regarding claim 4, a groove is a hole in which the support shaft (Fig. 4B, element 18) fits.

With respect to claim 5, Yoshikawa discloses the charging unit (Fig. 4B element 32) comprises an electric cable coupled to a power source (Fig. 4B element 60), and each of the charging terminals comprises an electrical connecting member embedded in the body and the head to electrically connect to the electric cable (See Fig. 4B element 18)

With respect to claim 10, Yoshikawa discloses a charging apparatus (Fig. 3, element 32) used with a mobile robot (Fig. 3, element 14) having a rechargeable battery (Fig. 3, element 52) and a contact terminal (Fig. 5, element 91 and 90), comprising a casing and a terminal mounting (Fig. 3, element 20); a charging circuit (Fig. 3, element 32) connectable to an external power source (Fig. 4B, element 60); a guide groove (see below) having a support member (Fig. 4B, element 18) to protrude from the terminal mounting (Fig. 3, element 20), and a head and a contact (Fig. 3, element 58), and electrically connected to the charging circuit (Fig. 3, element 32); a head (Fig. 4B, element 18; fig. 5, 83 and 85) movably connected to the second support member of the body.

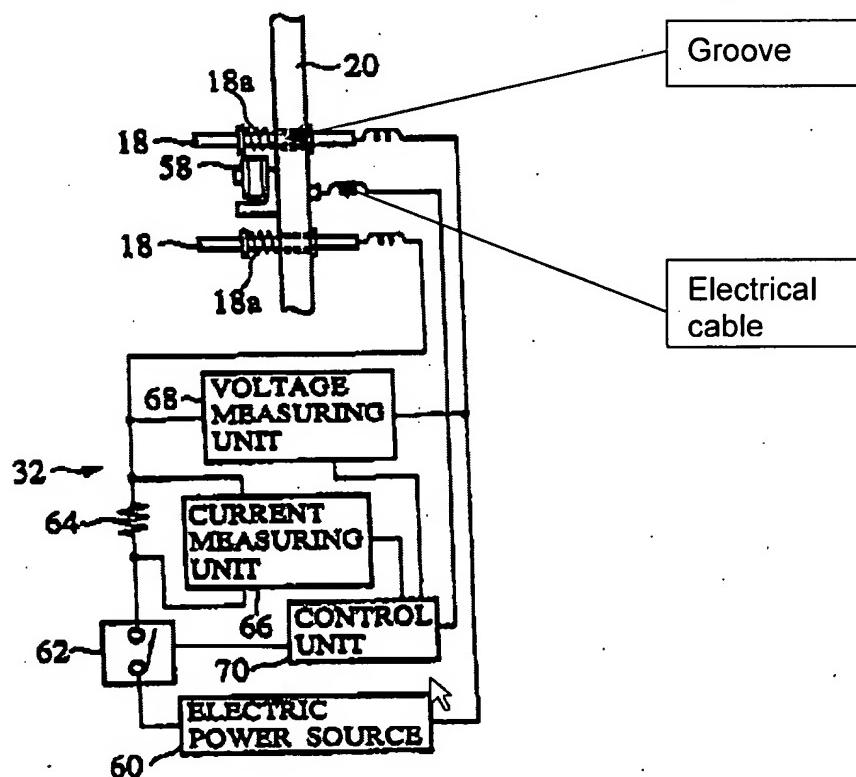
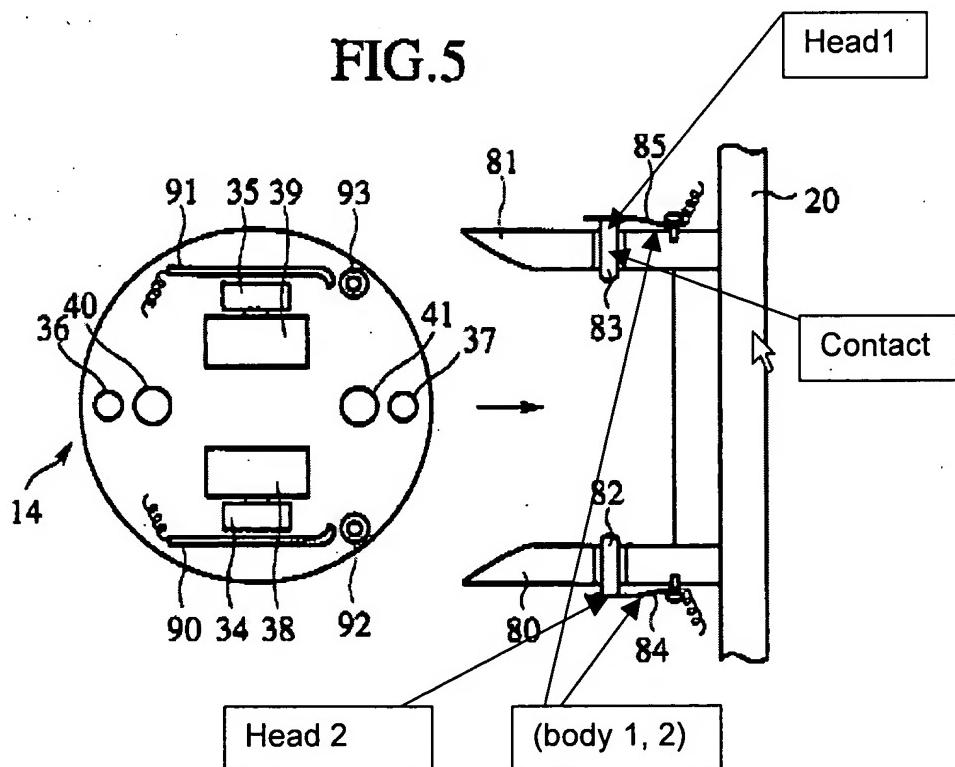


Fig. 4B.

Regarding claim 28, Yoshikawa discloses a charging apparatus used with a mobile robot (Fig. 4A and 4B) comprising: a rechargeable battery (Fig. 4A element 52) a plurality of charging terminals (Fig. 4B elements 56 and 57) in the mobile robot (Fig. 4A) and a charging unit (Fig. 3 element 32) including a plurality of charging terminals (Fig. 4B element 18) disposed to contact corresponding ones of the contact terminals to supply a charging current (Col. 2 lines 17-24) to the rechargeable battery (Fig. 3 element 52) of the mobile robot (Fig. 3 element 14), each of the charging terminals (Fig. 4B elements 18) comprising a body, a conductive material electrically connected to an external power source (Fig. 4B element 60), and a head movable coupled to the body (Fig. 4A element 14, 56 and 57) having a contact mounted on a predetermined position and electrically connected to the conductive material (Fig. 4B elements 54, 56 and 57) and to be brought into electrical contact with a corresponding one of the mobile robot (Fig. 4B elements 54, 56 and 57); wherein respective heads of the charging terminals ('head', see fig. 5 below) are bent with respect to corresponding ones (bent because of the spring effect and its movement) of bodies of the charging terminals in different directions when the contact terminals of the mobile robot (fig. 5, 90) contact corresponding ones of the charging terminals (fig. 5, 80 or 81) of the charging unit in a direction having an angle with a direction disposed on a line passing through a center of the mobile robot and a center portion of the charging terminals (see arrow direction of fig. 5, indicating forward towards the center); and wherein the contact terminals are disposed in a circular direction (fig. 5, 90 and 91) about a center of the mobile robot, the charging terminals comprise first and second charging terminals (fig. 5, 85 and 84)

Art Unit: 2838

having a first body with a first head (see fig. 5, 85 below) and a second body with a second head (see fig. 5, 84 below), respectively, the first head of the first charging terminal ("head 1", below) being disposed on a line having a first distance with a center thereof passing through the center of the mobile robot and a center portion of the charging terminals moves in a first direction with respect to the first body of the first charging terminal, and the second head of the second charging terminal (see fig. 5, "body 2" below) being disposed on a line having a second distance with a center thereof passing through the center of the mobile robot and a center portion of the charging terminals moves in a second direction with respect to the second body of the second charging terminal.



**Fig. 5**

***Allowable Subject Matter***

Claims 11-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments filed on 06/21/2006 have been considered but is ineffective to overcome the Yoshikawa reference, and on the ground of new rejection that contains indefinite and unclear claim, which calls for a second paragraph of 35 U.S.C. 112 rejection (see the rejection above).

With respect to claim 1, applicant argued that Yoshikawa does not disclose "a body and head movably connected", but Yoshikawa on fig. 5 discloses a body, and head movably connected as the spring of the terminal 'body' and the corresponding contact moves in order to effect a charging contact with the mobile terminal contact, as shown on the above fig. 5.

Regarding to claim 10, applicant also argues that the Yoshikawa reference fails to address that head movably coupled to the second support member, Yoshikawa, however, discloses that the 'body2', in fig. 5 above, labeled as 'head' is coupled to the second support (fig. 5, 84; and also see above fig. 5) and is also move due to the second portion of the spring attached to it during charging.

Regarding claim 28, contrary to applicant argument, Yoshikawa disclose that the respective heads (fig. 5, "head1, head 2", see above) of the elements are bent with respect to corresponding ones (because of the movement to charge the rechargeable

Art Unit: 2838

battery of the mobile) of bodies or the charging terminals in different directions (see fig. 5 above that shows the two possible charging terminals contact 83 and 82) when the contact terminals of the mobile robot contacts. Therefore the respective heads of the charging terminals in 85 and 84 proves that the terminals are bending with respect to the corresponding ones.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yalkew Fantu whose telephone number is 571-272-8928. The examiner can normally be reached on M - F: 7- 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl D. Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2838

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Adolf Denike Berthau  
Primary Examiner